Bridgeport’s Machining Centers are high-quality machine tools designed for leading edge machining in the Aerospace, Mold & Die, Medical and Automotive Industries and other manufacturing sectors. These machines have been developed to provide a powerful and precise solution to meet today’s high demands of the metal cutting user. Manufactured from quality-sourced, grey cast iron, these 5-Axis machines showcase power and speed at affordable prices.

GX 250 5AX

- **Axis Travel**
  - Travel (X/Y/Z axis): 11.8” x 15.7” x 16.9”
  - A Axis (tilt): +30° to -120°
  - C Axis (rotary): 360° (continuous)

- **Spindle Speed**: 15,000 RPM
- **Horsepower**: 20 HP (15 kW)
- **Magazine Capacity**: 30 Station ATC / CT 40 Big Plus
- **Control**: FANUC 3iHBS

Highly engineered machine structure manufactured from grey cast iron heavily ribbed throughout to ensure high overall rigidity and thermal stability.

GX 250 5F

- **Axis Travel**
  - Travel (X/Y/Z axis): 11.8” x 15.7” x 16.9”
  - A Axis (tilt): +30° to -120°
  - C Axis (rotary): 360° (continuous)

- **Spindle Speed**: 15,000 RPM
- **Horsepower**: 25 HP (18.5 kW)
- **Magazine Capacity**: 30 Station ATC / CT 40 Big Plus
- **Control**: FANUC Oi

30 Station Swing Arm ATC

15,000 RPM Direct Coupled spindle with air/oil lubrication

32mm double-nut ballscrews fixed and pre-tensioned to provide superior machine accuracy and repeatability

All geometric alignments conform to ISO 230 standards, every machine must pass strict laser and ballbar tests
**GXR 320 5F**

**Axis Travel**
Travel (X/Y/Z axis): 20" x 24" x 20"
A Axis (tilt): +30°~120°
C Axis (rotary): 360° (continuous)
Spindle Speed: 12,000 RPM
Horsepower: 20 HP (15 kW)
Magazine Capacity: 48 Station ATC / CT 40 Big Plus
Control: FANUC Oi

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**48 Station Swing Arm ATC**

- 12,000 RPM Direct Drive with grease lubrication
- 45mm double-nut ballscrews fixed and pre-tensioned to provide superior machine accuracy and repeatability
- Wide spaced guideways for higher overall stiffness with minimal overhang and better distribution of cutting forces

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All geometric alignments conform to ISO 230 standards, every machine must pass strict laser and ballbar tests.

Highly engineered machine structure manufactured from grey cast iron heavily ribbed throughout to ensure high overall rigidity and thermal stability.
Heavy Duty Linear Guideways, Ballscrews and Axis Drives
Wide-spaced, oversized linear guideways provide optimum stiffness with less friction, less heat and less thermal growth for faster traverse rates, longer machine life and greater positioning accuracy. The linear way modules consist of slide members (guide trucks) and linear rails to provide a large load rating, stable accuracy, high rigidity and low friction. The wide spacing between all axes rails provides optimum stiffness for the overall machine structure. Oversized 45mm (1.77”) ballscrews are featured on GX 320 5F, 32mm (1.26”) ballscrews on GX 250 5AX and GX 250 5F.

Large Capacity, fast performance automatic tool changers
GX-Series VMCs have a fast tool change time of 2.5 seconds (Tool-Tool). The design of random bi-directional ATCs and cam type mechanism features accurate, rapid and stable tool change system. 90 degree tool pocket prevents tool dropping. To ensure smooth and vibration-free tool changing, these machines have their tool changer strategically located for minimal transfer of vibration—a unique design feature. All ATCs feature random-access, bi-directional indexing.

Advanced digital control to unleash your productivity
A custom designed FANUC 31iMB5 control is used on the full 5-axis GX 250 5AX model. A FANUC Oi control is featured on the 5-sided GX 250 5F and GXR 320 5F machines. These controls have the latest hardware and software technology, providing an operator-friendly, common platform that is a standard throughout the world.

Fully integrated 5-axis rotary table
Bridgeport 5-Axis and 5-Face machines feature a robust integrated 5-axis rotary table supported by large bearings to allow heavy horizontal and vertical cutting loads with smooth and accurate rotation at all times. Equipped with a standard trunnion encoder, the GX 250 5AX and GX 250 5F offer an 8.26” table size and GXR 3205F offers a larger 12.59” table size.

BIG-PLUS dual contact spindle system
The BIG-PLUS spindle system assures higher rigidity, stiffness and accuracy of toolholders in high-speed and difficult machining applications. The dual contact precisely positions the toolholder within 1 micron following a tool change.

Elimination of Z-axial movement
At high rotational spindle speeds, the mouth of the machine spindle can expand slightly due to centrifugal force. As the machine spindle expands, the conventional toolholder, which is under constant draw bar pulling pressure, moves further into the spindle. On high tolerance applications, this slight pull back of the cutter can affect dimensional accuracy of the Z-axis. Pull back can also cause the toolholder to get locked into the machine spindle taper. The face contact provided by the BIG-PLUS Spindle System prevents the toolholder from being drawn back into the machine spindle.
Fanuc Oi Series

- 10.4” Color LCD
- AICC Contour Control II
- Manual Guide i
- Controlled axes 5
- Simultaneous controlled axes 4
- DNC operation with memory card
- Program restart
- Dry run
- Skip function
- Least input increment - 0.001mm, 0.001 deg.
- Fine Acc & Dec control
- Servo control HRV3
- Backlash compensation
- Linear interpolation
- Chamfering and corner rounding
- Coordinate system rotation
- Scaling
- Cylindrical interpolation
- Helical interpolation
  (Circular interpolation plus Max. 2 axes linear interpolation)
- Polar coordinate command
- Circular interpolation (Multi-quadrant is possible)
- Programmable mirror image
- Background editing
- Extended editing
- Dynamic graphic display
- Multi language display
- Run hour and parts count display
- Automatic acceleration /deceleration
- Automatic corner override
- Rapid traverse: linear Cutting feed: exponential
- Tool offset pairs, ± 6 digits, 400 pairs
- Tool length compensation
- Tool offset memory C
- Part program storage length 1280 m
- Number of registered programs 400
- Self-diagnosis function
- Alarm history display
- Operation history display
- Help function
- Stored pitch error compensation
- Sub call
- Custom Macro B
- Additional custom macro variables
- canned cycles for drilling
- Small hole peck cycle
- Tool life management
- Workpiece coordinate system, G52 - G59
- Addition of workpiece coordinate system 48 pairs
- Automatic tool length measurement
- Inch / Metric
- Manual Pulse Generator
- USB & PCMCIA Slot
- Tilted working plane command

Fanuc 31i MB5

- 10.4” LCD, Color Monitor
- AICC II look ahead block expansion
  - Bell Shaped ACC/DEC after cutting feed interpolation
  - Advanced Feed Forward Control
  - Auto Corner Override
- HRV3 – Allows for fine digital tuning of the servo drive’s
- Dry run
- Dynamic Graphic Display
- Least input increment - 0.001mm, 0.001 deg.
- High Speed Processing
- Ethernet Ready
- PCMCIA Card Slot
- USB
- Data Server
- Part Program Memory 1 MB
- Rigid Tapping
- Extended Editing Functions – Cut, Copy and Merge
- Tool Life Management
- Custom Macro B – Parametric Part Programming (Part Family’s)
- Tool Offset memory C – Separate Length and Diameter
- Tool Offsets 400 pairs
- Tool Length Measurement
- Multi language display
- Run Hour and Parts Count Display
- Helical Interpolation
- Cylindrical Interpolation
- Polar Coordinate Interpolation
- Constant Coordinate Interpolation
- High-Speed smooth TCP
- Work Coordinate Systems (G54-G59)
- Additional Work Coordinate System (G54.1 – G54.48)
- Coordinate System Rotation
- Scaling
- Rigid Tapping
- Program Restart (Mid program restart)
- Background Editing
- Program input of offset data (G10)
- Stroke Limit Check prior to move
- Pitch Error Compensation
- Inch / Metric Conversion
- Self-diagnosis function
- Alarm history display
- Operation history display
- Help function
- Stored pitch error compensation
- Sub call
- Automatic tool length measurement
- Inch / Metric
- Tilted working plane command
- Built-in 3D interface check function
- Canned cycle
<table>
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<th>Specifications</th>
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**Wash Down Option (Pump @ 60Hz)**
- Through Spindle Coolant Nozzle Coolant (Pump @ 60Hz)

**Coolant Tank Capacity**
- Compressed Air (Pressure Flow)
- External transformer
- Voltage (Other voltages require an external transformer)
  - Balanced 3-phase

**Positioning**
- Rapid Traverse (X and Y axes)
- Rapid Traverse (Z axis)
- Manual Mode (X, Y and Z axis)
- Feedrate Range (X and Y axes)
- Feedrate Range (Z axis)

**Acceleration x/y/z**
- Minimum Increment
- Ball Screw Diameter and Pitch (X, Y)
- Ball Screw Diameter and Pitch (Z)
- Axes Thrust (X, Y, Z)

**Spindle**
- Spindle Speed Range - Direct Coupled
- Spindle Motor HP Rating (10 min)
- Spindle Torque RPM (10 min)
- Spindle Taper
- Tool Holder
- Lubrication

**S-Axis Rotary Table**
- Rotary Table Diameter
- Table load
  - Vertical 110 lbs (50 kg)
  - Horizontal 165 lbs (75 kg)
- Max Workpiece Range Diameter x Height
- T-Slots (Size x Number of Slots)
- Control

**Automatic Tool Change**
- Type of tool shank
- Magazine capacity
- Tool Selection
- Max tool diameter (adjacent pockets)
- Max tool diameter (without adjacent pockets)
- Maximum Tool Length
- Maximum Tool Weight
- Tool change time (chip-to-chip)

**Coolant and Chip Management**
- Swarf removal
- Chip conveyor
- Wash down
- Wash gun
- Stainless chip pan

**Accuracy Specifications ISO 230-2**
- with scales X, Y, Z, A and C
- Positioning X, Y, Z
- Positioning A (arc sec)
- Positioning C (arc sec)
- Repeatability X, Y, Z
- Repeatability A, C (arc sec)

**Machine Size**
- Machine height
- Machine length
- Machine depth
- Machine weight

**Installation Specifications**
- Electrical supply - Balanced 3-phase
- Power
- Voltage (Other voltages require an external transformer)
- Compressed Air (Pressure Flow)
- Coolant Tank Capacity
- Nozzle Coolant (Pump @ 60Hz)
- Through Spindle Coolant
- Wash Down Option (Pump @ 60Hz)
Over the years, The Hardinge Group™ steadily diversified both its product offerings and operations. Today, the company has grown into a globally diversified player with manufacturing operations in North America, Europe and Asia. In addition to designing and building turning centers and collets, Hardinge is a world leader in grinding solutions with the addition of the Kellenberger, Jones & Shipman, Hauser, Tschudin and Usach brands to the Hardinge family. The company also manufactures Bridgeport machining centers and other industrial products for a wide range of material cutting, turnkey automation and workholding needs.

Expect more from your Hardinge products. Choose Hardinge precision and reliability for increased productivity and value!

Call us today, we’ve got your answer.